AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning page 17, line 15 with the following amended paragraph:

DESCRIPTION OF THE SYMBOL

1 carbon monoxide

2 fresh methanol

3 reactor

4 gaseous purging flow

5 liquid product (reaction mixture)

6 evaporator ~~(flusher)~~ (flasher)

7 bottom flow

8 overhead

9 a low-boiling component-acetic acid separation/distillation column

10 distillate (overhead)

11 a step for removing carbonyl impurities

12 line (reactor recycling line)

13 high-boiling component

14 acetic acid-distillation column

15 crude acetic acid

16 low-boiling component

17 high-boiling components having a boiling point higher than that of acetic acid

18 treatment tank filled with a cation exchange resin

19 acetic acid (product)

20 carbonyl impurities

9' distillation column

10' distillate

13' high-boiling component

Please replace the paragraph beginning page 28, line 2 with the following amended paragraph:

Fig. 1 is a production flow chart showing an embodiment of the production method according to the present invention. In this embodiment, carbon monoxide 1, fresh methanol 2, and, according to necessity, water are continuously fed to a carbonylation reactor 3. The liquid content in the reactor 3 is automatically kept to a predetermined level. The carbon monoxide 1 is preferably introduced to just below a stirrer equipped in the reactor 3. A gaseous purging flow 4 is exhausted from the reactor 3 to thereby prevent the accumulation of gaseous byproducts and maintain a set carbon monoxide partial pressure at a constant total pressure of the reactor. The reactor temperature is automatically controlled. A liquid product (reaction mixture) 5 is extracted from the reactor 3 at such a sufficient rate as to maintain the constant liquid level, introduced into the middle portion between the top and the bottom of an evaporator ~~(flusher)~~ (flasher) 6, and subjected to evaporation [Step (A)]. In the evaporator 6, a catalyst mixture is extracted as a bottom flow 7 and returned to the reactor 3 [Step (C)]. The bottom flow 7 mainly comprises acetic acid containing the rhodium catalyst and the iodide salt together with small amounts of methyl acetate, methyl iodide, and water. An overhead 8 of the evaporator 6 mainly comprises product acetic acid and further comprises methyl iodide, methyl acetate, and water. The overhead 8 is introduced to the bottom, the vicinity of the bottom, or the side of a low-boiling component-acetic acid separation/distillation column (low-boiling component-acetic acid splitter column) 9 and subjected to distillation [Step (B)]. A distillate (overhead) 10 of the low-boiling component-acetic acid separation/distillation column 9 mainly comprises methyl iodide and methyl acetate with small amounts of water and acetic acid. The distillate 10 is subjected to a step 11 for removing carbonyl impurities [Step (D)] and returned via a line (reactor recycling line) 12 to the reactor 3 [Step (E)]. A high-boiling component 13 is extracted from the side in the vicinity of the bottom (or from the bottom) of the low-boiling component-acetic acid separation/distillation column 9 and is introduced into an acetic acid-distillation column 14 at the side thereof and subjected to distillation. Then, crude acetic acid 15 is extracted from the bottom or from the side in the vicinity of the bottom of the acetic acid-distillation column 14 [Step (F)]. A low-boiling component 16 including water is discharged out from the top of the acetic acid-

distillation column 14, and high-boiling components 17 having a boiling point higher than that of acetic acid are discharged out from the bottom thereof. The low-boiling component 16 is recycled to the reactor 3. It is also possible to arrange a distillation column for distilling off water before the acetic acid-distillation column 14 and to feed the bottom flow of this column to the acetic acid-distillation column 14. The crude acetic acid 15 is further fed to a treatment tank 18 filled with a silver- or mercury-exchanged cation exchange resin [Step (G)]. In this step, alkyl iodides, such as hexyl iodide, contained in acetic acid in trace amounts are efficiently separated and removed to thereby yield high-quality acetic acid (product) 19.

Please replace the paragraph beginning page 34, line 21 with the following amended paragraph:

To a reactor 3 were continuously fed reaction raw materials (methanol 2 and carbon monoxide 1), a rhodium catalyst mixture 7 (containing a rhodium catalyst, an iodide salt, and acetic acid), and low-boiling components 12 (containing methyl iodide, methyl acetate, and water). The rhodium catalyst mixture 7 and the low-boiling components 12 had been recycled from a purification system. A reaction was thus conducted at a reaction pressure of 3.0 MPaG, a carbon monoxide (CO) partial pressure of 1.3 MPaA, a hydrogen (H_2) partial pressure of 0.03 MPaA, a reaction temperature of 188°C, and, of the reaction mixture, a methyl acetate (MA) content of 5.5 percent by weight, a rhodium (Rh) content of 800 ppm by weight, and a lithium iodide (LiI) content of 9.6 percent by weight. The reaction mixture 5 was ~~flushed~~ flashed using an evaporator 6, and a high-boiling component containing the catalytic component (rhodium catalyst mixture 7) was pressurized by a pump and recycled to the reactor 3. ~~Flushed~~ Flashed components 8 were fed to a low-boiling component-acetic acid separation/distillation column 9 and separated into low-boiling components 10 and high-boiling components 13. The high-boiling components 13 were fed to a distillation column 14, and a crude acetic acid 15 having a purity as acetic acid of 99.5 percent by weight or more was obtained as a side flow in the vicinity of the bottom of the distillation column 14. The low-boiling components 10 were subjected to extraction with water to thereby remove 50 percent by mole of acetaldehyde (AD) in the low-

boiling components 10 out of the system, and the residual low-boiling components were recycled via a line 12 to the reactor 3. Low-boiling components 16 obtained from the top of the distillation column 14 were also recycled to the reactor 3. The reaction mixture had a water content of the reaction mixture of 1.2 percent by weight, a methyl iodide (MeI) content of 14.3 percent by weight, and an acetaldehyde content of 400 ppm by weight.

Please replace the paragraph beginning page 37, line 8 with the following amended paragraph:

To a reactor 3 were continuously fed reaction raw materials (methanol 2 and carbon monoxide 1), a rhodium catalyst mixture 7 (containing a rhodium catalyst, an iodide salt, and acetic acid), and low-boiling components 12 (containing methyl iodide, methyl acetate, and water). The rhodium catalyst mixture 7 and the low-boiling components 12 had been recycled from a purification system. A reaction was thus conducted at a reaction pressure of 2.7 MPaG, a carbon monoxide partial pressure of 1.2 MPaA, a hydrogen partial pressure of 0.031 MPaA, a reaction temperature of 186°C, and, of the reaction mixture, a methyl acetate content of 5.5 percent by weight, a rhodium content of 650 ppm by weight, and a lithium iodide content of 9.9 percent by weight. The reaction mixture 5 was ~~flushed~~ flashed using an evaporator 6, and a high-boiling component containing the catalytic component (rhodium catalyst mixture 7) was pressurized by a pump and recycled to the reactor 3. ~~Flushed~~ Flashed components 8 were fed to a low-boiling component-acetic acid separation/distillation column 9 and separated into low-boiling components 10 and high-boiling components 13. The high-boiling components 13 were fed to a distillation column 14, and a crude acetic acid 15 having a purity as acetic acid of 99.5 percent by weight or more was obtained as a side flow in the vicinity of the bottom of the distillation column 14. The low-boiling components 10 were subjected to extraction with water to thereby remove 30 percent by mole of acetaldehyde (AD) in the low-boiling components 10 out of the system, and the residual low-boiling components were recycled via a line 12 to the reactor 3. Low-boiling components 16 obtained from the top of the distillation column 14 were also recycled to the reactor 3. The reaction mixture had a water content of 1.8 percent by weight,

a methyl iodide content of 12.1 percent by weight, and an acetaldehyde content of 400 ppm by weight.

Please replace the paragraph beginning page 39, line 17 with the following amended paragraph:

To a reactor 3 were continuously fed reaction raw materials (methanol 2 and carbon monoxide 1), a rhodium catalyst mixture 7 (containing a rhodium catalyst, an iodide salt, and acetic acid), and low-boiling components 12 (containing methyl iodide, methyl acetate, and water). The rhodium catalyst mixture 7 and the low-boiling components 12 had been recycled from a purification system. A reaction was thus conducted at a reaction pressure of 3.5 MPaG, a carbon monoxide partial pressure of 1.8 MPaA, a hydrogen partial pressure of 0.03 MPaA, a reaction temperature of 188°C, and, of the reaction mixture, a methyl acetate content of 5.3 percent by weight, a rhodium content of 800 ppm by weight, and a lithium iodide content of 10.9 percent by weight. The reaction mixture 5 was ~~flushed~~ flashed using an evaporator 6, and a high-boiling component containing the catalytic component (rhodium catalyst mixture 7) was pressurized by a pump and recycled to the reactor 3. ~~Flushed~~ Flashed components 8 were fed to a low-boiling component-acetic acid separation/distillation column 9 and separated into low-boiling components 10 and high-boiling components 13. The high-boiling components 13 were fed to a distillation column 14, and a crude acetic acid 15 having a purity as acetic acid of 99.5 percent by weight or more was obtained as a side flow in the vicinity of the bottom of the distillation column 14. The low-boiling components 10 were subjected to extraction with water to thereby remove 25 percent by mole of acetaldehyde in the low-boiling components 10 out of the system, and the residual low-boiling components were recycled via a line 12 to the reactor 3. Low-boiling components 16 obtained from the top of the distillation column 14 were also recycled to the reactor 3. The reaction mixture had a water content of 1.7 percent by weight, a methyl iodide content of 14 percent by weight, and an acetaldehyde content of 400 ppm by weight.

Please replace the paragraph beginning page 41, last line with the following amended paragraph:

To a reactor 3 were continuously fed reaction raw materials (methanol 2 and carbon monoxide 1), a rhodium catalyst mixture 7 (containing a rhodium catalyst, an iodide salt, and acetic acid), and low-boiling components 12 (containing methyl iodide, methyl acetate, and water). The rhodium catalyst mixture 7 and the low-boiling components 12 had been recycled from a purification system. A reaction was conducted at a reaction pressure of 2.8 MPaG, a carbon monoxide partial pressure of 0.97 MPaA, a hydrogen partial pressure of 0.14 MPaA, a reaction temperature of 187°C, and, of the reaction mixture, a methyl acetate content of 1.6 percent by weight, a rhodium content of 650 ppm by weight, and a lithium iodide content of 5.0 percent by weight. The reaction mixture 5 was ~~flushed~~ flashed using an evaporator 6, and a high-boiling component containing the catalytic component (rhodium catalyst mixture 7) was pressurized by a pump and recycled to the reactor 3. ~~Flushed~~ Flashed components 8 were fed to a low-boiling component-acetic acid separation/distillation column 9 and separated into low-boiling components 10 and high-boiling components 13. The high-boiling components 13 were fed to a distillation column 14, and a crude acetic acid 15 having a purity as acetic acid of 99.5 percent by weight or more was obtained as a side flow in the vicinity of the bottom of the distillation column 14. The low-boiling components 10 were subjected to extraction with water to thereby remove 66 percent by mole of acetaldehyde in the low-boiling components 10 out of the system, and the residual low-boiling components were recycled via a line 12 to the reactor 3. Low-boiling components 16 obtained from the top of the distillation column 14 were also recycled to the reactor 3. The reaction mixture had a water content of 8.0 percent by weight, a methyl iodide content of 13.0 percent by weight, and an acetaldehyde content of 300 ppm by weight.

Please replace the paragraph beginning page 44, line 2 with the following amended paragraph:

To a reactor 3 were continuously fed reaction raw materials (methanol 2 and carbon monoxide 1), a rhodium catalyst mixture 7 (containing a rhodium catalyst, an iodide salt, and acetic acid), and low-boiling components 12 (containing methyl iodide, methyl acetate, and water). The rhodium catalyst mixture 7 and the low-boiling components 12 had been recycled from a purification system. A reaction was thus conducted at a reaction pressure of 2.8 MPaG, a carbon monoxide partial pressure of 1.0 MPaA, a hydrogen partial pressure of 0.175 MPaA, a reaction temperature of 188°C, and, of the reaction mixture, a methyl acetate content of 1.3 percent by weight, a rhodium content of 660 ppm by weight, and a lithium iodide content of 22.9 percent by weight. The reaction mixture 5 was ~~flushed~~ flashed using an evaporator 6, and a high-boiling component containing the catalytic component (rhodium catalyst mixture 7) was pressurized by a pump and recycled to the reactor 3. ~~Flushed~~ Flashed components 8 were fed to a low-boiling component-acetic acid separation/distillation column 9 and separated into low-boiling components 10 and high-boiling components 13. The high-boiling components 13 were fed to a distillation column 14, and a crude acetic acid 15 having a purity as acetic acid of 99.5 percent by weight or more was obtained as a side flow in the vicinity of the bottom of the distillation column 14. The low-boiling components 10 were recycled as intact via a line 12 to the reactor 3 without removing acetaldehyde therefrom. Low-boiling components 16 as an overhead of the distillation column 14 were also recycled to the reactor 3. The reaction mixture had a water content of 4.0 percent by weight, a methyl iodide content of 14.5 percent by weight, and an acetaldehyde content of 980 ppm by weight.